

TUNABLE BRIDGE CIRCUIT

ABSTRACT OF THE DISCLOSURE

A tuning circuit for use in an electrical circuit network is disclosed. The tuning circuit includes a bridge circuit. The bridge circuit comprises a first adjustable capacitance grouping, a second adjustable capacitance grouping and a third adjustable capacitance grouping. Each adjustable capacitance grouping includes at least one tunable capacitor and a bias port. In one embodiment, the tunable capacitor is comprised of a tunable thin-film barium strontium titanate (“BST”) capacitor. A first lead and a second lead couple to, or extend from, the bridge circuit. The leads are configured to couple with a coupling element and a shunt element of the electrical circuit network so that when the leads are grounded, one adjustable capacitance group is grounded and the remaining adjustable capacitance group couple with a bias voltage to appropriately tune the electrical circuit to achieve desired electrical characteristics.